CLAIMS

<u>What is Claimed is:</u>

1.   A method for identifying contours within pixel-based image data, comprising:

expressing said image data as a grid of columns and rows;

establishing a scan order over said grid to define a parent-child

5   relationship between contiguous pixels in adjacent rows and to define a

sibling relationship among non-contiguous pixels in the same row;

establishing a run data structure in computer-readable memory that

defines a run member by is row position and by its starting and ending column

positions;

10   said run data structure further defining parent, child and sibling

structures for storing information about the parent-child relationships and

sibling relationships of pixels associated with said run member;

scanning said image data according to said scan order to identify

contiguous pixels of a predetermined state as identified run members;

15   determining the parent-child and sibling relationships of said identified

run members;

populating said run data structure with the row position and starting

and ending column positions of said identified run member and with the

parent-child and sibling relationships of said identified run member;

20   using said populated run data structure to traverse the parent-child

and sibling relationships and thereby identify contours within said pixel-based
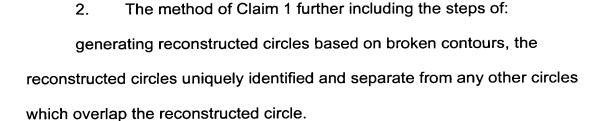
image data.

2.   The method of Claim 1 further including the steps of:

generating reconstructed circles based on broken contours, the reconstructed circles uniquely identified and separate from any other circles which overlap the reconstructed circle.

3.   The method of Claim 1 wherein the predetermined state is a tone, a color and combinations thereof.

4.   The method of Claim 1 wherein the parent-child and sibling relationships are pointers which establish a linked list of the run member data structures.

5.   The method of Claim 1 further includes the steps of:

identifying the first run member occupying a row position and starting and ending column positions;

determining all parent-child and sibling relationships of pixels associated with the first run member;

identifying additional run members based on the parent-child and sibling relationships; and

wherein a connected component is retrieved based on identifying links from the parent-child relationships.